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BULLETIN  
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***Cerastium arvense*, L., and its North American Varieties.**

BY ARTHUR HOLLICK AND N. L. BRITTON.

Plates LXIII-LXV.

While botanizing on Staten Island, New York, during the past ten or twelve years, our attention was frequently attracted by a *Cerastium*, which grows abundantly at many places on the serpentine hills, and in no other parts of the Island. This plant agrees in general with the description of *C. oblongifolium*, Torrey, in the Flora of the State of New York, and yet it exhibits such a variety of forms that we were led to collect a large number of specimens and memoranda for comparison. The further the subject was investigated the more interesting it became to us, and finally resulted in the study of not only this plant, but of allied forms from other places. Our studies have resulted in the conclusion that the Staten Island plants are more properly to be regarded as a variety of *C. arvense*, L., and that many other American forms of *Cerastium* are to be referred to varieties of this species, as modified by climate, soil, etc.

In addition to specimens in our own collections and those in the herbarium of Columbia College, others from the following herbaria have been kindly placed at our disposal: Harvard University, United States Department of Agriculture, Academy of Natural Sciences of Philadelphia, and Torrey Botanical Club. In addition to these, we have received specimens and notes from Prof. T. C. Porter, Mr. C. E. Smith, Mr. W. M. Canby, Mr. J. M. Macoun, Dr. J. C. Arthur, Prof. S. M. Tracy, and others.

The following is our proposed arrangement of the North American forms of the species:

CERASTIUM ARVENSE, L. Leaves linear or narrowly lanceolate; those of the stem distant; stem and leaves hairy or nearly

smooth; bracts small; capsule equaling or somewhat exceeding the calyx. (Plate LXIV., f. I.)

Spec. Plant., Ed. i., 438; Ed. ii., 628; Ed. iii., 628; Fenzl., in Ledeb. Fl. Ross., i., p. 412; DC., Prodr., i., 419; Syn. Flor. Gall., 395; Hudson, Fl. Angl., 201; Engl. Bot., Pl. 93; Benth., Handbook Brit. Fl., i., 126; Koch, Syn. Flor. Germ., 135; Reichb., Icon. Fl. Germ., vi., Pl. 234, f. 4980; Ettingshausen & Pokorny, Phys. Pl. Austr. ix., Pl. 889; Hartm., Handb. Skand. Flor., 132; Boiss., Flor. Orient., i., 728; Regel, Fl. Ost. Sib., i., 427 and 444; Gay, Fl. Chil., i., 276; Rohrb., Linnæa, xxxvii., 393.

Hook., Fl. Bor. Am., i., 104; Muhl., Cat., 46; Bigel., Fl. Bost., 196; Torrey & Gray, Fl. N. A., i., 188; Eaton & Wright, 188; Torrey, Fl. N. Y., i., 99; Bot. Wilke's Exp., 246; Engelm., Trans. Amer. Phil. Soc., xii., 186; Beck, Bot., 54; Gray, Pac. R. Rep., xii., 41; Amer. Journ. Sci. (II.), xxxiii., 405; Proc. Phil. Acad., 1863, 59; Manual, 94; Wood, Classbook, Ed. 1855, 188; Bot. & Flor., 55; Cooper, Pac. R. R. Rep., xii., 57; Chapman, 50; Darby, 247; Meehan, Flowers and Ferns, ii., pp. 189-192, excl. figure.

Porter, Hayden's Rep., 1870, 473; 1871, 479; Porter & Coulter, Fl. Col., 13; Watson, King's Rep., v., 38 and 417; Bot. Cal., i., 67; Rothrock, Geog. Surv. W. 100th Merid., vi., 71; Willis, Cat. N. J., 12; Britton, Prel. Cat. N. J. Fl., 16; Coulter, Bot. Rocky Mount. Reg., 33; Macoun, Cat. Plants Can., i., 77.

*C. incanum*, Ledeb., Mem. Acad. St. Petersburg, v., 540 (fide Regel).

? *C. hybridum*, Muhl., Ind. Fl. Lanc., in Trans. Am. Phil. Soc. (I.) iii., 170.

*C. pennsylvanicum*, Hornem., Hort. Hafn., 435; DC., Prodr. i., 420; Spreng., Syst. Veg., ii., 418; Don. Gard. Dict., i., 446.

*C. elongatum*, Nutt., Journ. Acad. Sci., Phil., vii., 16. ?

*C. tenuifolium*, Pursh., Fl. Amer. Sept., 321.

*Habitat.* Throughout northern North America, extending southward along the Alleghanies and the Rocky Mountains; also in the Andean region of South America and in Patagonia. Throughout northern and central Europe and northern Asia.

Var. *LATIFOLIUM*, Fenzl. Leaves lanceolate to oblong-lanceolate, shorter and broader than in the type; those of the stem closer; stems low, 3 to 8 inches high, pubescent. (Plate LXV., f. 5.)

Var. *latifolium*, Fenzl., and var. *alpicolum*, Fenzl., in Ledeb. Flor. Ross., i., 412; Regel, Flor. Ost. Sib., i., 445.

*G. strictum*, L., Spec. Plant., 3d Ed., 529; DC., Prodr., i., 419.

*C. ciliatum*, Reichb., Icon. Flor. Germ., vi., Pl. 235, f. 4981.

*C. pubescens*, Goldie, Edin. Phil. Journ., 1822; Richards, Frank. Journ., ed. 2, p. 18; DC., Prodr., i., 420; Don. Gard. Dict., i., 447.

*C. pennsylvanicum*, Hook., fide spec. in Herb. Acad. Nat. Sci., Phil.

? *C. arvense*, Richards, Franklin Journey, 10.

*Habitat.* Arctic and alpine regions of Europe, Asia and North America. Labrador (Steinhaur, Kreuth, in Herb. Gray); Utah (L. F. Ward, No. 539, 1875); Pike's Peak, Colo. (Parry) Franklin

Expedition (Hooker l. c.); and credited by Regel to "Ross Colonie," N. W. America (l. c.); Cent. Utah (Parry, Nos. 5 and 6, 1875); Mts. of Colo., 1872 (Torrey); Clear Creek Station, Col. (Newberry).

Var. *ANGUSTIFOLIUM*, Fenzl. Leaves elongated, linear or narrowly linear-lanceolate; stems pubescent, hoary or glandular. (Plate LXV., f. 7.)

In Ledeb. Fl. Ross., i., 413; Regel, Flor. Ost. Sib., i., 445.

*C. arvense*, Hook., Lond. Journ. Bot., vi., 75.

*C. elongatum*, Pursh, Fl. Amer., Sept., i., 321; DC. Prodr., i., 417; Spreng., Syst. Veg., ii., 417; Hook., Flor. Bor. Amer., i., 103.

*Habitat.* Northern Asia and northwest America. Oregon (Geyer, 284).

Var. *MAXIMUM*, n. var. Plants strong and stout, 12 to 20 inches high; leaves broadly linear to lanceolate, 2 to 4 lines wide, 1 to 2 inches long, acutish; capsule  $1\frac{1}{2}$  times the length of the calyx; lower bracts generally foliaceous. (Plate LXIV., f. 2.)

*Habitat.* Noyo, Mendocino Co., California (Bolander, Nos. 4723 and 6520); western California (G. R. Vasey), near San Francisco (Mrs. M. K. Curran).

Var. *OBLONGIFOLIUM*, n. var. Leaves narrowly or broadly oblong, or lanceolate-oblong, mostly obtuse; capsules  $1\frac{1}{2}$  to  $2\frac{1}{2}$  times the length of the calyx; stems generally taller and stronger than in the type; pubescent. (Plates LXIII., and LXV., f. 6.)

*Cerastium*, n. sp., Torrey, Amer. Journ. Sci., iv., 63.

*C. oblongifolium*, Torrey, Fl. U. S., i., 460; Fl. N. Y., i., 99; Darlingt., Florula Cestr., 54, and Fl. Cestr., 3d Ed., 33, in part; Torrey and Gray, Fl. N. A., i., 188, in part; Gray, Man., 94; Wood, Class-book, 188, in part; Bot. & Flor., 55; Beck, Bot., 54?; Tatnall, Cat. Phen. & Fil. Plants, Newcastle Co., Del., 17; Newberry, Cat. Plants, Ohio, p. 14; Porter, in Mombert's Auth. Hist. Lanc. Co., Pa., 583; Walling and Gray's New Topog. Atlas, Penn., 25; Macoun, Cat. Plants Canada, i., 77; Anderson, in Rep. State Mineralogist, Nevada, 118; Meehan, Flowers and Ferns, ii., pp. 189 192; Coulter, Cat. Plants, Indiana, 4; Hollick and Britton, Fl. Richmond Co., N. Y., 8; Patterson, Cat. Plants, Ill., 7; Arthur, Contr. Fl. Iowa, 9; Upham, Cat. Fl. Minn., 32; Ward, Bull. U. S. Nat. Museum No. 22, 68; Tracy, Cat. Plants, Missouri, 15.

*C. dichotomum*, Muhl., Cat., 46.?

? *C. bracteatum*, Raf., Proc. Decouv., 36; Poir., Suppl. v., 601; DC., Prodr., i., 420; Don. Gard. Dict., i., 447; Torrey and Gray, Fl. N. A., i., 189.

*Habitat.* Eastern United States from Virginia to New York;

near Alexandria, Va. (A. H. Curtiss); Washington, D. C. (Vasey, Ward); Montgomery Co., Md. (J. D. Smith); Newcastle Co., Del. (Canby, Commons); Lancaster Co., Penn. (Porter); eleven miles west of Philadelphia (C. E. Smith); and abundant on the hills of Staten Island, N. Y.; also extending westward to the Sierra Nevada; Sandusky, Ohio (Douglass); Ogle Co., Ill. (Bebb); Dixons, Ill. (Vasey); Decorah, Iowa (Holway); Amherstburgh, Ontario (Macoun); Belleville, Ontario (Mrs. Roy); Santa Magdalena Mts., N. M. (G. R. Vasey); near Bozeman, Montana (Scribner).

In the eastern United States, from southern New York to Maryland, this variety is apparently confined to magnesian rocks. On Staten Island it is certainly restricted to the serpentine area; with regard to the Pennsylvania localities, Mr. C. E. Smith writes: "So far as I know or have ever heard, it is unknown in our district (Philadelphia), except in one spot about eleven miles west of the city, where the road to West Chester crosses the serpentine rocks, where it is plenty;" and we have examined a specimen of Dr. Darlington's collecting, marked "Serpentine hill, Westchester, Pa.," while in his "Flora Cestrica," he remarks, "Banks of serpentine rock, frequent;" as to the Delaware stations, Mr. W. M. Canby says, "I do not know of its growing elsewhere in this State, nor anywhere in this region (Newcastle Co.), except on the serpentine, where it is very plentiful," and Mr. A. Commons collected it "on serpentine rock, Centreville, Del." It also appears to grow in other places on magnesian limestone, though we have not been able to verify this to any extent; specimens have been seen by us marked "Banks of Susquehanna, Lancaster Co., Pa., T. C. Porter;" and Professor Porter has sent us specimens from the vicinity of Easton, Penn., at both of which localities magnesian limestone occurs; and the original of Dr. Torrey's *C. oblongifolium* came from a region of magnesian limestone near Sandusky, Ohio. Further south and west than these points we have thus far been unable to follow this interesting association.

In this connection we have thought it a matter of some interest to present the following analysis of the ash of this plant, from specimens collected on Todt Hill, Staten Island, kindly made

for us by Mr. Ernest J. Lederle, of the School of Mines:

Silica (Si O <sub>2</sub> )	-	-	-	-	-	39.85
Alumina and Oxide of Iron (Al <sub>2</sub> O <sub>3</sub> and Fe <sub>2</sub> O <sub>3</sub> )						18.58
Lime (Ca O)	-	-	-	-	-	9.35
Magnesia (Mg O)	-	-	-	-	-	19.79

From this it is seen that the magnesia constitutes about one-fifth of the entire ash of the plant, and is present in larger quantity than any other constituent except the silica.

It should be remarked that the specimens seen from about Washington, D. C., and from Montgomery county, Md., are larger than those from the serpentine areas. The same may also be said of the specimens from Amherstburgh, Ontario, said by Mr. Macoun to grow in "damp woods," and also of those from the West. In some respects these approach the forms referred by us to var. *maximum*.

In Meehan's "Native Flowers and Ferns of the United States," Vol. ii., plate 48, is an illustration of one of these large forms, made from a specimen collected in Bergen Park, Colo., at an altitude of 7,000 feet. If this drawing is correct, it very nearly represents our var. *maximum*, but we have not seen any specimens of this from the Rocky Mountain regions.

Between Dr. Torrey's original description in the American Journal of Science and Arts, in 1822, and his later description in the Flora of the State of New York, published in 1843, there is the following discrepancy: In the former the leaves are described as *acute*, and the capsules as *shorter than the calyx*, while in the latter the leaves are described as *mostly obtuse*, and the capsules as *about twice as long as the calyx*. This is, perhaps, to be accounted for by the original imperfect material. The latter description agrees with the characters of our var. *oblongifolium*.

Var. *VILLOSUM*, n. var. Stem leaves lanceolate to ovate-lanceolate; capsules 2 to 2½ times the length of the calyx; the whole plant densely villous-pubescent. (Plate LXV., f. 8.)

*C. villosum*, Muhl., Cat., 46; Darlingt., Flor. Cestr., 2d Ed., 279.

*C. hirsutum*, ? Darlingt., Florula Cestr., 54. ?

*C. oblongifolium*, Darlingt., Flor. Cestr., 3d Ed., 33, in part; Torr. & Gray, Fl. N. A., i., 188, in part.

*Habitat.* On serpentine rocks, Lancaster Co., Penn. (Porter);

Chester Co., Penn. (Kilvington, in Herb. Acad. Nat. Sci., Phil.)

This variety is to be regarded as the extreme broad-leaved and hairy form of the species. Its range appears to be restricted to the serpentine barrens of Pennsylvania, where it apparently passes gradually into the var. *oblongifolium*.

Var. *FUEGIANUM*, Hook., f. Low; smooth; leaves short, small, coriaceous and imbricated, lanceolate to ovate-lanceolate in outline; pedicels solitary, or in few-flowered cymes; capsules somewhat exceeding the calyx. (Plate LXIV., f. 3.)

*C. arvense*, var. —, Coulter, in Hayden Rep., 1872, 762, name only.

Collected by Professor J. M. Coulter, Aug. 11th, 1872, at Lower Fire Hole Basin, Yellowstone Park.

This interesting form is identical with the var. *Fuegianum*, Hook. f., in Bot. U. S. Expl. Exp., i., 129 (our Plate LXIV., f. 4), from Fuegia, with specimens of which we have compared it.

As analagous to this remarkable distribution we have that of *Carex Magellanica*, Lam., whose range in North America is from the arctic regions to northern Pennsylvania and Utah.

#### EXPLANATION OF THE PLATES.

Plate LXIII.—*Cerastium arvense*, L., var. *oblongifolium*, drawn from a living plant collected on Todt Hill, Staten Island, New York, May 26th, 1886.

Plate LXIV., fig. 1.—*C. arvense*, L. Drawn from a specimen collected by Prof. T. C. Porter, on the shore of the Delaware River below Phillipsburg, N. J.

Fig. 2.—*C. arvense*, L., var. *maximum*. Drawn from a specimen collected by Mrs. M. K. Curran, near San Francisco, Cal.

Fig. 3.—*C. arvense*, L., var. *Fuegianum*. Drawn from specimen collected by Prof. J. M. Coulter, at the Lower Fire Hole Basin, Yellowstone National Park.

Fig. 4.—*C. arvense*, L., var. *Fuegianum*, Hook., f. from Orange Harbor, Fuegia.

Plate LXV., Fig. 5.—*C. arvense*, L., var. *latifolium*, Fenzl. Drawn from specimen collected in the mountains of Colorado, 1872, by Dr. Torrey.

Fig. 6.—*C. arvense*, L., var. *oblongifolium*, from Staten Island.

Fig. 7.—*C. arvense*, L., var. *angustifolium*, Fenzl. Drawn from specimen in Dr. Gray's herbarium, collected in Oregon by Geyer.

Fig. 8.—*C. arvense*, L., var. *villosum*. From specimen collected by Prof. T. C. Porter, in Lancaster county, Penn.

All the figures on Plates LXIV. and LXV. were drawn from herbarium specimens.

### Some New or Little Known American Plants.

BY THOMAS MORONG.

*ERYNGIUM LUDOVICIANUM*. A new species belonging to Chapman's scaly fruited section is sent by Rev. A. B. Langlois, from Natchitoches county, Louisiana.

Stem slender, erect, about 18 inches high, diffusely branching; leaves few, the lower oblong, irregularly serrate or incised, the teeth and apex spinescent, 3 to 5 lines wide and 1 to 2 inches long, tapering into a winged petiole which broadens into a clasping base, the uppermost linear, more deeply laciniate, often three-cleft; involucre leaflets six to eight, rigid, entire or dentate towards the base, twice as long as the heads, recurved or reflexed; inflorescence cymose, the whitish heads hemispherical, 2 to 3 lines in diameter, on slender peduncles  $\frac{1}{2}$  to 1 inch in length; flowers small, light blue; bracts tricuspidate, longer than the flowers; fruit scaly.

This plant grows in sandy barrens, and may be easily distinguished from *E. Baldwinii*, Spreng., and *E. prostratum*, Nutt., with which it occurs, and with which it might be confounded, by its erect habit, its tricuspidate bracts and scaly fruit.

*MYRIOPHYLLUM ALTERNIFLORUM*, DC. This species, hitherto reported no nearer to us than Greenland, was detected last August by Mr. J. R. Churchill at Sargent's Bay, Lake Memphremagog, Canada. It is somewhat like *M. spicatum* in appearance, but with much more slender stems and shorter leaves; spikes quite slender and only 1 to  $1\frac{1}{2}$  inches long; the pistillate floral

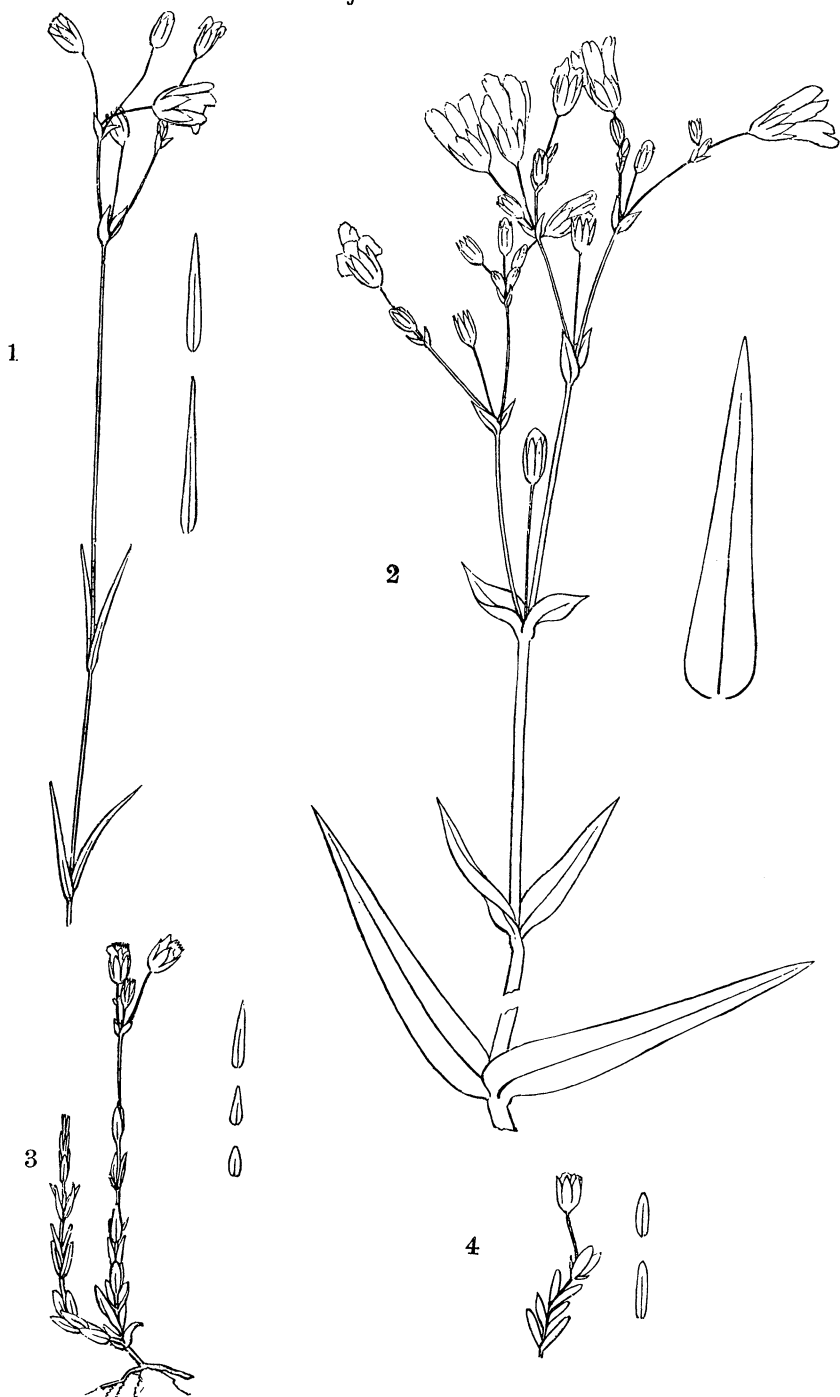




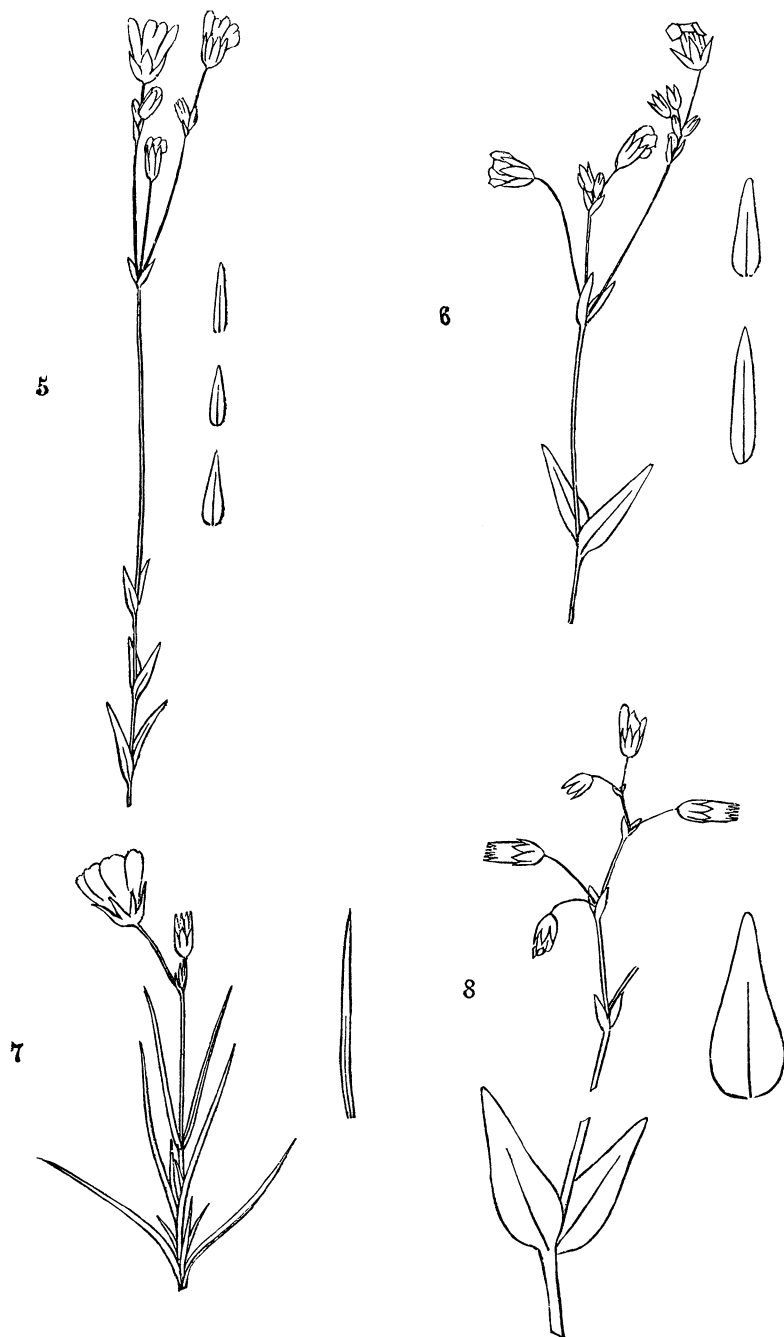
Arthur Hollick del. ad Nat.

Julius Bien & Co. Lith

CERASTIUM ARVENSE L., VAR. OBLONGIFOLIUM



*Cerastium arvense*, L., and Varieties.



Varieties of *Cerastium arvense*, L.